

PERMEABILITY LABORATORY TEST REPORT

Laboratory Report Number: LR2545
Customer Reference: PO109647
Issue Date: 22 August 2023

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Sample Identification

Samples of black membrane labeled Combi Seal Plus Batch AO108756 sampled 10 July 2023 were received for testing.

Equipment used

Versaperm Permeability Meter MK IV, configured to run ISO15105-2 equal pressure method with calibrated quantitative mass spectrometer, Hiden QPR-20, as sensor

Test Conditions

Sample Conditioning: Samples were stored for 2 days in a desiccator at 23°C.

Test Gas: Analytical grade solvent liquids placed directly on film

Carrier Gas and for Baseline: Zero grade N2

Atmospheric Pressure: TBA.

Test Date: In progress

Sample Dimensions

Trade Name/ Identification	Minimum Thickness / μm	Maximum Thickness / μm	Mean Thickness / μm
Combi Seal Plus Batch AO108756	800	810	805

Test Methods

Organic Vapour Transmission Rate.

This test was carried out using the method ISO 15105-2 *Plastics — Film and sheeting —*

Determination of gas-transmission rate - Part 2: Equal-pressure method. The sample was clamped into the measuring area cell, and dry nitrogen passed over both sides at 100ml/min. The measuring chamber area was 50cm² (diameter 80mm). After 24 hours, the atmospheric content had been removed from the sample and chamber and a stable base line was reached. The test liquid was then injected into the chamber on top of and in direct contact with the sample. Dry nitrogen continued to flow at 100ml/min over the other side of the sample. As the gas permeated through the sample, it was swept by the carrier gas to the mass spectrometer. The carrier gas was sampled periodically until a stable reading was obtained, typically between 3 and 7 days.

Test Results

Trade Name / Identification	Vapour Tested	Gas Transmission Rate (GTR)
		Liquid mg/(m ² .day)
Combi Seal Plus Batch AO108756	Hexane	1.30
Combi Seal Plus Batch AO108756	Benzene	2.66
Combi Seal Plus Batch AO108756	Toluene	1.19
Combi Seal Plus Batch AO108756	Ethyl Benzene	5.74
Combi Seal Plus Batch AO108756	Xylene	1.73
Combi Seal Plus Batch AO108756	Vinyl Chloride	0.21
Combi Seal Plus Batch AO108756	Tetrachlorethene	0.06
Combi Seal Plus Batch AO108756	Trichloroethylene	3.59
Combi Seal Plus Batch AO108756	Naphthalene	0.35

Appendix: Permeation rate curves are attached.



